

Engineering Services Solid State Physics Radiation Effects Financial Management

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Ms. Carol Hanson
 U.S. Dept. of Energy
 Yucca Mtn. Site Characterization Office
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Dear Ms. Hanson:

I have enjoyed a 50 year career in the field of nuclear radiation effects and have been the principal author of two books on the subject and approximately 50 peer reviewed technical publications. The Yucca Mtn. program is seriously flawed from a technical perspective, from an economic perspective and from a management perspective.

First, burying the waste will assure that at some time in the future, radioactive material will find its way into underground water and into the food chain. Admittedly, this may not be in sufficient quantity to present a serious health hazard, but a minor health hazard is a certainty.

Second, the most appropriate way to handle the waste is local storage. The NRC has already certified that local dry storage is safe and it is the present default solution. The government should negotiate with nuclear power plants to cover the cost of this as the government has promised to take responsibility for waste storage. Local storage has a major advantage of not requiring expensive accident free containers for transporting the waste and expensive vehicles for transporting the waste. The accident threat to communities through which the waste must pass is completely removed.

Third, there is an old New England adage. "Never put all your eggs in one basket." Even though the possibility of a major accident at Yucca Mtn. is remote, the possibility of volcanic action or earth quake action or a severe climate change leading to much heavier rain fall cannot be completely discounted. A major accident would be catastrophic. Possible accidents at local storage sites are less probable, would be much smaller and affect only a limited area.

Fourth, from an economic standpoint, local storage would be about ten times less expensive than the Yucca Mtn. program. This is a huge saving (approximately \$100B) for the American taxpayers.

Fifth, the DOE can not be trusted to properly manage this program. Here is just one example of many I can recall. At Hanford, the DOE stored high level nuclear waste with half life of thousands of years. in cement silos with an MTBF (mean time between failure) of thirty years. Quite predictably, radioactive waste soon seeped into the underground water threatening the entire Columbia river basin. Cleaning up this problem has already cost billions of dollars and is ongoing. No one in DOE was ever called into account for this stupid and costly mistake. DOE has many qualified nuclear engineers, but the major decisions such as the Hanford fiasco are made by high level political managers with no technical competence who routinely ignore good technical advice from the lower level competent scientists. They are almost never called to account for these tragic mistakes.

Sixth, the DOE is sponsoring misleading propaganda in its Yucca Mtn. tours. On the tour I was on, the tour director promised to answer all technical questions. He showed us an experiment to determine how far the heat from radioactive decay would penetrate the surrounding rock and how hot it would get at the site of the storage. I asked, "What is the thermal conductivity of the rock?" He replied, "I don't know, but this hasn't got anything to do with the experiment. But I will find out and let you know. Give me your card" This response was totally wrong and could only have come from a technically incompetent individual. Thermal conductivity is the single most important factor in determining the transfer of heat from the stored radioactive material!! I still haven't received the promised information. This individual also repeatedly made statements that the government had determined that the program was completely safe, when in fact the safety is still under study. This lying propaganda should be stopped!

In conclusion as I have demonstrated, Yucca Mtn. project is a tragic mistake from technical, economic and management perspectives. Thank you for considering this input.

Sincerely Yours,
 George C. Messenger

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